

**CLAIMS**

1. A catalyst composition for use in a hydrocarbon conversion process with the provision that the hydrocarbon  
5 conversion process is not cracking of polymers, which composition comprises
  - (a) an ionic liquid catalyst with an N-containing heterocyclic and/or aliphatic organic cation and an inorganic anion derived from metal halides or mixed metal halides,  
10 and
  - (b) one or more Brønsted Acids.
2. Catalyst composition of claim 1, wherein the cation of the ionic liquid catalyst is an N-aliphatic moiety with  
15 one or more alkyl or aryl groups.
3. Catalyst composition of claim 2, wherein the N-aliphatic moiety is an ammonium compound and/or an alkyl substituted pyridinium, piperidinium or quinolinium compound.  
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4. Catalyst composition of claim 1, wherein the anion of the ionic liquid is derived from a metal halide with strong Lewis acidic properties.  
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5. Catalyst composition of claim 1, wherein the ionic liquid catalyst is obtained by combining N-containing heterocyclic and/or N-containing aliphatic organic compounds with one or more metal halides in a molar ratio of between  
30 1:3 and 1:0.5.

6. Catalyst composition of claim 1, wherein the metal halide is selected from  $\text{AlCl}_4^-$ ,  $\text{AlBr}_4^-$ ,  $\text{GaCl}_4^-$ ,  $\text{Al}_x\text{Cl}_{2x+1}^-$ ,  $1 < x < 2$  and  $\text{Al}_x\text{Cl}_{2x}\text{Br}^-$ ,  $1 < x < 2$ .
- 5 7. Catalyst composition claim 1, where the Brønsted Acid is selected from  $\text{ClSO}_3\text{H}$ ,  $\text{FSO}_3\text{H}$ , alkane sulphonic acids, fluorinated alkane sulphonic acids, carboxylic acids, fluorinated carboxylic acids and mineral acids.
- 10 8. A process for isomerisation of paraffinic hydrocarbons by contacting a feed stock comprising the paraffinic hydrocarbons with a composite catalyst according to any one of the preceding claims at process conditions being effective in the isomerisation of the paraffinic hydrocarbons.
- 15 9. Process of claim 8, wherein the composite catalyst is pretreated by heating at a temperature below  $250^\circ\text{C}$ .
- 20 10. Process of claim 8, wherein the process conditions comprise a pressure from 1 to 60 bar and a temperature from  $-30^\circ\text{C}$  to  $150^\circ\text{C}$ .